

## TWO NEW SPECIES OF POLYGALA ENDEMIC TO PANAMA

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### ABSTRACT

Two species of *Polygala* belonging to the *Timutua* of Blake are described as new. *Polygala wurdackiana* and *P. jefensis* are endemic, respectively, to isolated and extremely rich Panamanian cloud forests at El Valle de Antón in the Province of Coclé and to Cerro Jefe in the Province of Panama.

Still another genus can be added to a long list now accumulating of species endemic either to El Valle de Antón, about 50 miles west of the Canal Zone in the Province of Coclé, or to Cerro Jefe, just east of the Zone in the Province of Panama (cf. Dwyer, *Taxon* 16: 159, 1967). These and other cloud forests, largely from about 2500-3500 ft in elevation, apparently have been the sites of evolution of many taxa, following their isolation from the main North American cordillera, which now vacillates to sea level throughout the length of the isthmus. To the rich cloud forest floras are added two new species of *Polygala*, one to each area noted, and both closely allied yet quite unlike any others from the New World (for a full comparison with other Panamanian species, see the treatment of the *Polygalaceae* in the *Flora of Panama* by Lewis & MacBryde, *Ann. Missouri Bot. Gard.* 56(1), 1969, in press).

*Polygala wurdackiana* W. H. Lewis, sp. nov.—Fig. 1A-D.

Inter species *Timutuae* Blake remote affinis *P. aparinoidi* Hooker et Arnott differt habitu suffrutescenti, foliis grandibus usque 3 cm latis, floribus albis pedicellis usque 3 mm longis, sepalis et petalis grandioribus, cristis 8-22 lobis vel furcatis, seminibus ovatis curvis 4 mm longis, arillis obovatis 2.5-3 mm longis.

Suffrutescent *perennials* to 1.3 m, branched above, often with 2-4 branchlets at a node, glabrous, angular, green. *Leaves* (2-)3-5 in whorls; petioles 4-10 mm long, glabrous; blades elliptic to less commonly ovate, basally somewhat attenuated, apically acute, the margins remotely crenate, glabrous, sparingly punctate, 4-7.5 cm long and 1.8-3 cm wide decreasing in size apically. *Inflorescences* terminal, racemose, glabrous, the axis elongating to ca 9 cm, the flowers loose; bracts ovate, glabrous, deciduous, 0.8-1 mm long. *Flowers* white, the pedicels to 3 mm long; outer sepals 3, marginally ciliate, the larger ovate, concave, 2.3-2.5 mm long, the smaller pair ovate to oblong, usually short-connate at the base, sometimes free, 1-1.5 mm long; inner sepals (wings) 2, obovate to oblong-elliptic, apically rounded, basally short-clawed, marginally ciliate, persistent, 3.2-3.8 mm long; petals 3, the keel 2.5-2.8 mm long with a crest 8-22 lobed (often irregularly forked and varying in size), the upper pair obovate, rounded, equaling the keel. *Capsules* widely oblong, glabrous, 4-5 mm long, 3.2-4 mm wide; seeds 2, ovate, 4 mm long,

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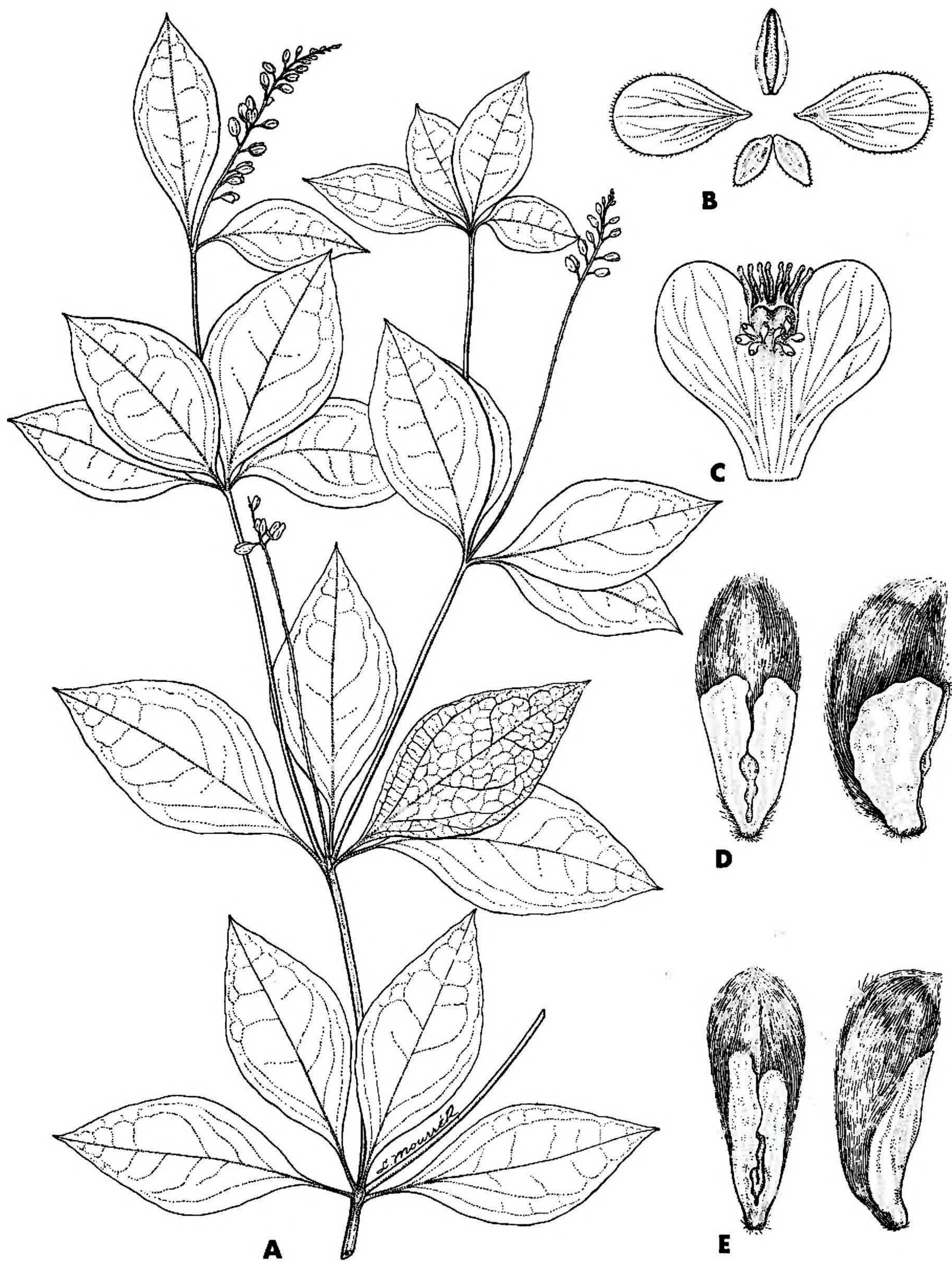


Fig. 1. *Polygala wurdackiana* W. H. Lewis (A-D) and *P. jefensis* W. H. Lewis (E). A. Habit,  $\times \frac{2}{3}$ . B. Three outer and two inner larger sepals (wings),  $\times 5$ . C. Keel with crest of 12 lobes, upper paired petals and anthers,  $\times 10$ . D. Seed of *P. wurdackiana* showing obovate aril,  $\times 10$ . E. Seed of *P. jefensis* showing oblong aril,  $\times 10$ . A-D after Lewis et al. 1723 (MO); E after Bouché s.n. (MO).

densely pubescent with hairs copper colored at maturity; arils 2.5-3 mm long, the 2 lobes broadly obovate, appressed. Pollen ca  $50\mu$  (E)  $\times$   $29\mu$  (P), sexine smooth, 6-8 colporate, the colpi  $33\mu$  long,  $5\mu$  wide with thick nexinous regions  $4\mu$  wide between the colpi and thickening to  $4\mu$  equatorially where the nexine

abruptly thins, synorate, the ora broad; after acetolysis grains readily shatter at the equator. *Flowering* Jan-May.

Apparently endemic to the cloud forest above 2500 ft in the vicinity of El Valle de Antón, Panama.

COCLÉ: Cerro Pajita, hills N of El Valle de Antón, 1000-1200 m, common, 7 Febr 1947, *Allen & Allen 4170* (MO); Cerro Caracoral (vic of El Valle de Antón), alt ca 1000 m, elfin forest, 19 Jan 1968, *Duke & Dwyer 15101* (MO, NY); mountains N of El Valle de Antón, alt 2500-3000 ft, cloud forest, 28 May 1967, *Lewis, MacBryde, Oliver & Ridgway 1723* (holotype MO, isotypes DUKE, K, UC, US).

*Polygala wurdackiana* is named for Dr. John J. Wurdack, Department of Botany, Smithsonian Institution, Washington, D. C., a student especially of South American members of the family.

*Polygala jefensis* W. H. Lewis, sp. nov.—Fig. 1E.

*Polygala wurdackiana* affinis sed differt laminis acuminatis et dense punctatis, sepalis parvioribus uterque praebens glanes grandiores binatas, arillis lobis oblongis.

*Herb* to shrub 2 m high (*Duke 9431*), branched above with 2-3 branchlets per node, glabrous, angular. *Leaves* 4-5 in whorls; petioles usually 4-7 mm long, glabrous; blades elliptic, somewhat attenuated basally, acuminate apically, the margins remotely crenate, glabrous, densely punctate, the more mature 4-5.5 cm long and 2-2.5 cm wide. *Inflorescences* terminal, racemose, glabrous, the axis to 7 cm long, the flowers  $\pm$  loose; bracts ovate-lanceolate, ciliate, deciduous, 0.8-1 mm long. *Flowers* greenish white, the pedicels to 2 mm long; outer sepals 3, marginally ciliate, the larger ovate, concave, 2 mm long, the smaller pair ovate to oblong, 1 mm long, usually shortly connate at the base, each with 2 large glands; inner sepals (wings) 2, broadly obovate, apically rounded, basally short-clawed, persistent, marginally ciliate, 3.5 mm long, 2.5 mm wide; petals 3, the keel 3 mm long with a crest 6-20 lobed (mostly 6), the upper pair obovate, rounded, 3 mm long, glabrous. *Capsules* widely oblong to subglobose, glabrous, 4 mm long, 3-3.5 mm wide; seeds 2, ovate, curved, 4 mm long, pubescent with hairs copper colored at maturity; arils 2.8-3 mm long, the 2 lobes oblong, appressed. *Flowering* Jan-July.

Endemic to Cerro Jefe, Province of Panama; closely allied to *P. wurdackiana*.

PANAMA: Cerro Jefe, alt 3400 ft, *Bouché s.n.*, 31 Jan 1954 (holotype MO); *Duke 9431* (MO), 21 Jan 1967; alt 2700-3000 ft, *Tyson et al. 4397* (MO), 9 July 1966.